

CMPUT 355 Quiz 1

February 2, 2024

Grading Rubric

1. a) total 1, each 0.5
b) total 1, each 0.5
c) total 1, if extra wrong move with correct move 0.5
d) total 1, if extra wrong move with correct move 0.5

2. Quiz 1a:

```
union(4, 7): (2 points)
  find(parents, 4) = 4
  find(parents, 7) = 7
  parents[7] = 4
union(8, 7): (2 points)
  find(parents, 8) = -3
  find(parents, 7) = 4
  parents[4] = -3
```

Quiz 1b:

```
union(1, 4): (2 points)
  find(parents, 1) = 1
  find(parents, 4) = 4
  parents[4] = 1
union(5, 4): (2 points)
  find(parents, 5) = -3
  find(parents, 4) = 1
  parents[1] = -3
```

Quiz 1c:

```
union(0, 1): (2 points)
  find(parents, 0) = -1
  find(parents, 1) = 1
  parents[1] = -1
union(4, 1): (2 points)
  find(parents, 4) = 4
  find(parents, 1) = -1
  parents[-1] = 4
```

3. 2 points: Correct order of lines, up to allowable permutations.
 Part marks given for a mostly correct ordering
 1 point: Correct indentation of lines (given correct ordering)
 1 point: Proper explanation of line given in b)
- IC - insufficient comment
 IO - incorrect ordering
 PIO - partially correct ordering
 II - incorrect indentation
4. 0.5 points: Each correct first illegal move identified ($0.5 * 4 = 2$)
 0.5 points: Each correct explanation for the illegal moves ($0.5 * 4 = 2$)
5. 2 points: Correct line for hex board initialization is given.
 Part marks given for mostly correct line
 2 points: Accurate explanation for the purpose of line 92.
 Part marks given for reasonable explanation that's slightly off.
6. a) total 1
 b) total 1
 c) total 2
 Part marks given for partially correct explanations

Quiz 1a

1. a) black 5, white 9
 b) black 5, white 12.5
 c) B[c1]
 d) W[e2]

2.

	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
parent	-4	-3	-2	-1	3	1	-4	-4	4	5	6	7	-3	9
U 4, 7	-4	-3	-2	-1	3	1	-4	-4	4	5	6	4	-3	9
U 8, 7	-4	-3	-2	-1	3	1	-4	-4	-3	5	6	4	-3	9

3. a) (6)
 (8)
 (4)
 (9)

(0)
(5)
(3)
(2)
(1)
(7)

Note: (0) and (5) can be permuted

Note: (2), (1), (7) can be permuted

Note: another allowable arrangement is:

(6)
(8)
(4)
(9)
(3)
(2)
(1)
(7)
(0)
(5)

- b) Any comment, without incorrect information, that has to do with tracking black neighbours is acceptable. e.g.

This line sets `b_nbr` to true if at least one of the neighbours is black

An example of an incorrect comment would be,

This line checks that the point and it's neighbour is black

4. 8.W[b2] 9.B[c2] 10.W[a1]

- a) 9.B[c2] → Superko violation
- b) 9.B[c2] → Superko violation

8.W[d3] 9.B[pass] 10.W[d1] 11.B[b2]

- a) 10.W[d1] → liberty violation
- b) all moves legal

5. a) `self.nbr offset = ((-1,0), (-1,1), (0,1), (1,0), (1,-1), (0,-1))`

b) Line 92 checks whether a particular neighbouring cell is within the valid range of rows and columns on the game board.

6. a) LS
 b) No professional had played before (unusual)
 c) Weak move (1 mark). The move did not confuse AG, and AG responded well

Quiz 1b

1. a) black 5, white 9
 b) black 5, white 12.5
 c) B[c1]
 d) W[a2]

2.

	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
parent	-4	-3	-2	-1	3	1	-4	-4	4	-3	6	7	8	9
U 1, 4	-4	-3	-2	-1	3	1	-4	-4	1	-3	6	7	8	9
U 5, 4	-4	-3	-2	-1	3	-3	-4	-4	1	-3	6	7	8	9

3. a) (2)
 (4)
 (0)
 (5)
 (7)
 (1)
 (9)
 (8)
 (6)
 (3)

Note: (7) and (1) can be permuted

Note: (8), (6), (3) can be permuted

Note: another allowable arrangement is

- (2)
 (4)
 (0)
 (5)
 (9)
 (8)
 (6)

(3)
(7)
(1)

- b) Any comment, without incorrect information, that has to do with tracking black neighbours is acceptable. e.g.

`This line sets b_nbr to true if at least one of the neighbours is black`

An example of an incorrect comment would be,

`This line checks that the point and it's neighbour is black`

4. 8.W[b2] 9.B[c2] 10.W[a1]

- a) 9.B[c2] → Superko violation
b) 9.B[c2] → Superko violation

8.W[d3] 9.B[pass] 10.W[d1] 11.B[b2]

- a) 10.W[d1] → liberty violation
b) all moves legal

5. a) `self.nbr offset = ((-1,0), (-1,1), (0,1), (1,0), (1,-1), (0,-1))`

- b) Line 92 checks whether a particular neighbouring cell is within the valid range of rows and columns on the game board.

6. a) AG

- b) Human won't play the move since it is considered a bad move
c) Strong move (1 mark). With this move, all the stones played before are connected

Quiz 1c

1. a) black 5, white 9
b) black 5, white 12.5
c) B[c3]

d) W[a2]

2.

	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
parent	-4	-3	-2	-1	-1	1	2	-2	4	5	-2	7	8	9
U 0, 4	-4	-3	-2	-1	-1	-1	2	-2	4	5	-2	7	8	9
U 4, 1	-4	-3	-2	4	-1	-1	2	-2	4	5	-2	7	8	9

3. a) (9)

- (1)
- (7)
- (2)
- (3)
- (8)
- (6)
- (5)
- (4)
- (0)

Note: (3) and (8) can be permuted

Note: (5), (4), (0) can be permuted

Note: another allowable arrangement is

- (9)
- (1)
- (7)
- (2)
- (6)
- (5)
- (4)
- (0)
- (3)
- (8)

b) Any comment, without incorrect information, that has to do with tracking black neighbours is acceptable. e.g.

This line sets b_nbr to true if at least one of the neighbours is black

An example of an incorrect comment would be,

This line checks that the point and it's neighbour is black

4. 8.W[b2] 9.B[c2] 10.W[a1]

a) 9.B[c2] → Superko violation

b) 9.B[c2] → Superko violation

8.W[d3] 9.B[pass] 10.W[d1] 11.B[b2]

a) 10.W[d1] → liberty violation

b) all moves legal

5. a) `self.nbr offset = ((-1,0), (-1,1), (0,1), (1,0), (1,-1), (0,-1))`

b) Line 92 checks whether a particular neighbouring cell is within the valid range of rows and columns on the game board.

6. a) LS

b) Human experts didn't think there was a possible move

c) Strong move (1 mark). With this move, AG was confused and responded poorly